



GLAST Monthly PSR

April 7, 2004

GBM



Accomplishments



- GBM Quarterly was held at GSFC, March 3rd.
- GBM has accepted Astrium (Germany) proposal for GSE Power Supply and PS thermal model, work started.
- GSFC/GLAST has made an outstanding team contribution to GBM, working to resolve the MPE parts shortfall by using their broad contacts to locate/tap NASA excess parts.
- Rushed MSFC procurement is underway to acquire the critical parts for MPE EQMs that were not available from excess.
- DPU EU#1 was delivered to NSSTC March 8th, acceptance testing completed, DPU #2 returned to SwRI for upgrades.
- υ NSSTC received mechanical GBM detector models from MPE.
- SAI delivered the SDIS to NSSTC on March 15th.



Issues/Problems



- SAI coupled thermal model analysis results indicate that the current GBM-SC accommodation does not meet the detector operational & survival temperature requirements. GBM has developed what appears to be a viable alternative to the German thermal radiator design. GBM & SAI are proceeding to construct a pros & cons matrix for discussion this week. The goal is to reach a final decision prior to the SC CDR dry run.
- MPE funding shortages are impacting the parts procurement /schedule for the German GBM EQM and likely the flight deliveries to NSSTC. MSFC expects to wrap up their procurement effort by this Friday, vendor delivery dates known. GBM has begun schedule discussions with the Germans in an attempt to protect the flight deliveries to SAI.



Upcoming Events



- Complete the GBM schedule reprogramming effort, May PSR
- GBM System Level CDR scheduled for June 29, 2004

GBM Master Schedule March 15, 2004

Task Name	2003 F M A M J J A S O N D J	2004 F M A M J J A S O N D	2005 J F M A M J J A S O N D J F	M A
GBM Projectimestones		▽ =	27 V 23 V V 13 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16	
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MPE Milestones				
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SwRI/DPU Milestones				
S/W Milestones (Flight & Gnd Sys)				
Flight Instrument Development		-	₹	
Instrument FLGHT Software	<u> </u>		■▽■■	
Digital Processing Unit (DPU) (MSFC)	- 			
System Integration & Environmental Testing		everetterner	MANANTANANA MANANTANANANANANANANANANANANANANANANANAN	
Ground Instrument Operations Conton (IOC) Activation & Operation	-			
IODA Software Deliverables		**************************************	**************************************	
Education & Public Out		****		
				77



GBM Structural Models







GBM Top Level Schedule



Activ	UID1	Activity	Current	Current				2004							200	15		
ID	0.0000000	Description	Start	Finish	J F	MA	M	J J	A	0	N D	J	F M	A N	/I J	JA	S	O N E
	nstrument	Drawningsplace and Colonia Decorpting and Too			1													
	519	GBM FSW Build 1 Delivery	05/24/04	05/24/04	i		4					li		į			H	
0313	385	GBM CDR (Combined Systems)	06/29/04*	06/29/04	1	I.		*		1	1			- }				
5036	913	MPE: Ship Nal & BGO EQM Detectors to MSFC	06/24/04	07/06/04	1			~										
5038	716	MSFC: Receive Nal & BGO EQM's	07/06/04	07/06/04	i I I	į	i i	1		ii	i	1	ii	i	i i	i		ii
0101	516	SwRI Delivers DPU Flight Unit to MSFC	08/31/04	08/31/04	- 1				📈						1 1			
0107	538	GBM FSW Build 2 Delivery	11/01/04	11/01/04	i			i		į A	X i	Li		i		i		
0215	732	MPE Pre-Ship Review (MPE PSR)	01/05/05	01/05/05	1			1			I I			1	1 1			
0131	727	MPE Science Test (Calib)	12/13/04	01/18/05	Ì													
0137	733	MSFC Receive Flight Unit from MPE		02/04/05	1	-	 	1	1 1		-	1		- 1				
0028	592	GBM PER	04/15/05*	04/21/05														
0389	553	GBM FSW Build 3.0 Delivery	06/06/05	06/06/05	I I I	i i		1		1 1	1			1		1		1 1
0164	796	I&T Complete @ MSFC/GBM Rdy for Obs I&T		09/06/05	į									į				
0174	796	GBM Instrument FLOAT @ MSFC (72 Calendar Days)	09/05/05*	11/15/05	1 1			1			1			Ì	1 1	4		
0298	767	GBM Delivered to Spectrum for Observatory I&T	11/15/05*	11/15/05	1													X
0031	1357	GBM PSR	11/18/05*	11/25/05	Î I	İ		İ				İ		į		İ		
0034	1618	GBM Integrated on Space Craft Bus		11/30/05	i			i						i				•
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Finish Dat		03/01/04 Ployless Ball To	「GBM Proje op-Level Sc	hedule	е		Date				Revis	sion			Ch	ecked	App	proved
Run Date		06/04 10:38 Critical Activity	Status as of	3/1/04								-	-					
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Activ	Activity	Current	Current			2004		
ID	Description	Start	Finish	MAR	APR	MAY	JUN	J
_	strument						1	
GBM To	pp-Level Milestones				i 1	i I	i I	i
					i !	i I	i	į
0098	GBM FSW Build 1 Delivery	05/24/04	05/24/04	No.	i ! !		i ! !	į
0313	GBM CDR (Combined Systems)	06/29/04*	06/29/04		1		1	
	strument Development				1			-
GBM Engi	neering Model				i !	į	i I	1
	Nal EQM Detector Testing @ DJO	03/01/04	03/19/04		1 1 1	1 1 1	i L !	1
0305	DJO: Deliver Nal EQM to MPE	05/25/04*	05/25/04	- - - - - -	1		1	
0315	DJO: Nal EQM Detector Testing Complete	05/25/04*	05/25/04		1 1 1		I L I	1
GBM BG					1		1	
6095	DJO: Assemble Detector FEE Housings	01/22/04A	03/01/04	7] 	E E E	1 1 1	
0562	MPE: Procure BGO EQM Detector Housing	01/15/04A	03/01/04		1 1 1	 	I I I	ł
0592	Procurement of BGO EQM Detector Housing Compete	03/02/04	03/02/04		1		1	
0312	MPE: Procure BGO EQM Detector PMT Assembly Parts	11/12/03A	03/03/04		1 1 1	1 1 1	1 1 1	1
0342	Procure BGO EQM Detector PMT Assembly Parts	03/04/04	03/04/04	∠	! ! !		! !	
0372	DJO: Start Integration of BGO EQM Detector Compo	03/05/04	03/05/04		1 1 1	1 1 1	1 1 1	1
6105	DJO: Assemble FEE's (16)	01/30/04A	03/15/04] 	1	! !	
6075	Detector FEE's Ready for Integration	03/15/04	03/15/04*		i 1 1	i L	i 	į
0382	DJO: Integrate BGO EQM Detector Components	03/08/04	03/31/04		7		! ! !	
8071	Assemble EQM FEE PCB's (3)	01/19/04A	04/16/04		1	1 1 1	! ! !	1
8091	Inspect EQM FEE PCB's (3 EQM + 1 Spare)	04/16/04	04/16/04				1	
8081	EQM FEE Mechanical & PCB Integration & Testing	04/19/04	04/30/04	7			i !	į
Start Date Finish Dat	25(10/07)		GBM Projec	Sheet 1 of 5 ct Schedule	Date	Revision	Checked	Approved
Data Date	i Togress Dai		Rolling Wa	ave	Juic	INCTIGION	Uncered	, approved
Run Date	04/06/04 09:39	St	atus as of	3/1/04				
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Activ	Activity	Current	Current						
ID	Description	Start	Finish	MAR		APR	2004 APR		
0302	DJO: Assembly of BGO EQM Detector Complete	04/30/04	04/30/04						
0432	DJO: Perfom BGO EQM Detector Assembly	03/31/04	04/30/04		_				•
7021	MSFC Receives GBM Test Cables from Spectrum	06/09/04*	06/09/04				I I		Z
7041	DJO: Rcv Space Craft Protoflight Cables frm MSFC	06/09/04	06/09/04						
6081	DJO: BGO EQM Detector Testing Complete		06/22/04					 	
6101	DJO: Deliver BGO EQM to MPE	06/22/04	06/22/04				 	1	
6051	BGO EQM Detector Testing @ DJO	04/01/04	06/22/04	4					
0314	Deliv EQM Detectors(BGO & Nal) to MPE from DJO	06/22/04	06/22/04					II) E	
5039	Nal & BGO EQM Final Inspection @ MPE	06/23/04	06/23/04						
5036	MPE: Ship Nal & BGO EQM Detectors to MSFC	06/24/04	07/06/04				E E		
GBM DPI	J Bread Board						1		
0647	DPU BB @ MSFC for Testing	07/01/02A	05/21/04				i		
0155	MSFC Deliv DPU BB(Analog Protoflight) to MPE	05/26/04*	05/26/04	11 12 12 14			1 1 1		
0683	DPU EU #1 Acceptance Testing	06/21/04	07/01/04				1 1 1		
0662	DPU BB @ MPE for Testing	05/26/04*	07/27/04				I.	_	
GBM DPI	J Engineering Unit						į.	-	1
0638	SWRI Deliver DPU EU #1 to MSFC	03/25/04	03/25/04						
0644	Develop DPU Engineering Units 1 & 2	04/11/02A	03/25/04				i I		
0650	DPU EU #1 @ MSFC for Testing-1	09/22/03A	03/25/04		100 00				
0690	DPU EU #2 Acceptance Test	03/26/04	04/09/04				i i		
5110	Develop Wiring Harness	03/15/04*	04/30/04						
5100	Develop Analog Interface Simulator	03/15/04*	05/03/04						
5080	Develop Power Box Simulator	06/02/03A	05/28/04				i i		
6046	Return DPU EU #2 to SwRI for Rework	03/18/04*	06/04/04				i		
0653	DPU EU #1@ MSFC for Testing-1	03/26/04	06/18/04				1	Till till till till till till till till	
							į	į	
5049	MPE: Packaaging of EQM's for Shipment to MSFC	06/23/04	06/24/04				į		

Sheet 2 of 5



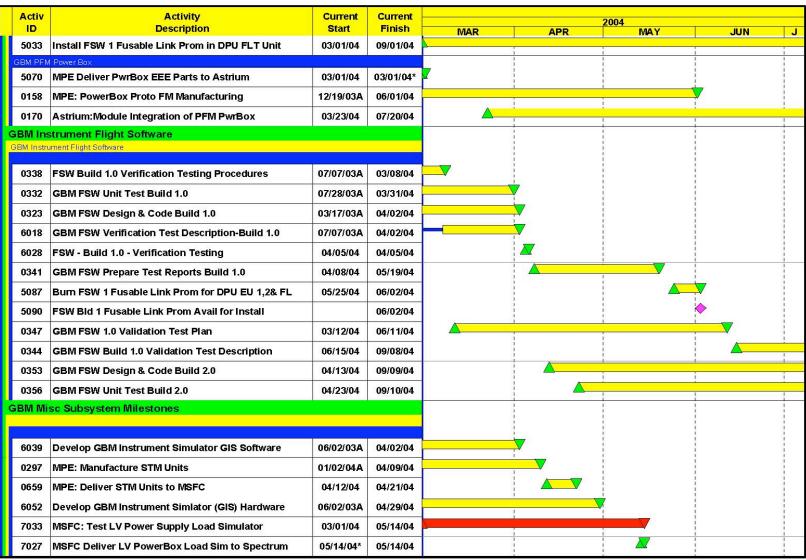


Activ	Activity	Current	Current					
ID	Description	Start	Finish	MAR	APR	2004 MAY	JUN	J
GBM Flight GBM NAI	t Model							
	Manufacture FM Nal Crystals	03/01/04*	07/15/04					
GBM BGC	A PRODUCT OF A STATE O			30		1 	1	
1251	Develop & Manufacture FEE Tester	01/19/04A						
1241	MPE: Deliver FEE EEE Parts to DJO	03/01/04	03/01/04	7		i i		
1311	DJO: Receive FM BGO Crystals	03/01/04	03/01/04	7				
8053	MPE Deliver BGO Crystals to DJO	03/01/04*	03/01/04	7		i I I	1	
8055	MPE Deliv Connectors, PMTs, Heaters&Thermostats	03/30/04*	03/30/04	<u> </u>	'	1 1 1 1		
8065	DJO: Integration of Detectors	03/31/04	03/31/04		A Section 1	1		
1231	Voltage Divider PCB Manufacturing	09/29/03A	04/09/04			E E E		
1261	Assemble & Test EQM Voltage Dividers (3)	04/12/04	04/12/04					
1281	Assemble & Test FM Voltage Dividers (16)	04/13/04	04/13/04			1		
1331	Optical Layers & CFRP Wrapping - FM BGO Crystals	03/01/04*	04/22/04		V	1 1 1	!	
0711	Detector Parts Manufacturing	04/09/04*	05/06/04					
0391	DJO: Manufacture FM BGO Titanium Brackets (2)	03/22/04*	05/20/04			!	1	
0571	FM BGO Titanium Brackets Available f Integration	05/21/04	05/21/04					
0681	MPE: Deliver FM BGO Brackets to DJO	05/24/04	05/24/04					
0761	MPE: Receive 5 FM PMT's fm Hamamatsu	05/25/04*	05/25/04				İ	
0821	MPE: Receive 10 FM Pmt's fo Hamamatsu	06/23/04*	06/23/04			1		
0791	MPE: Receive 5 FM PMT's fm Hamamatsu	06/25/04*	06/25/04			1	_	
0141	Manufacture FM FEE Mechanical Parts (16)	05/14/04	07/09/04				1	
0731	Hamamatsu Manufacture 20 FM PMT's	03/01/04*	07/23/04				1	
1301	Assemble FM FEE PCB's (16)	04/16/04*	09/02/04				<u> </u>	
0151	FM FEE Mechanical & PCB Integration & Testing	05/14/04*	10/14/04				1	
8075	DJO: Subsystem Performance Test TRR	04/01/04	11/05/04					
GBM DPU	Flight Unit					Í.	1	
0330	Final DPU Design, Build & Test	08/08/03A	08/31/04					

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Activ ID	Activity Description	Current Start	Current Finish	MAR		APR	2004	MAY		N .
-	MSFC Rec Dtr Location&Cable Length from Spectrum	06/08/04*	06/08/04	IVIAR		APR	i.	IVIAY	JU	N J
	Develop Ground Supt System (GSS-1) Software	10/01/03A	07/30/04		<u> </u>		i		i	i
6073	Develop Ground Supt System (GSS-1) Software	10/01/03A	07/30/04		<u> </u>		Į.		ļ	

Sheet 5 of 5



Deliverable Schedule



Activ	Activity	Current	Current	0000		0004	T .	0005	
ID	Description	Start	Finish	2003 M I I A S O N D	LEMA	2004 MJJASOND	LEMA	2005	SONE
GBM II	nstrument				<u> </u>				
7023	MSFC Receives SC Simulator (SIIS) from Spectrum	05/30/03A	05/30/03A	*	1 1				
7017	MSFC Dlv Final Cable&Connector Specs to Spectrum	07/03/03A	07/03/03A	X					
6092	MSFC Deliver Structural Math Models to GSFC		10/23/03A	X					
7025	MSFC Receives GBM FLT Connectors from Spectrum		10/30/03A	*	1 1				
6091	MSFC Deliver Thermal Math Models to GSFC		11/14/03A						
7027	MSFC Deliver LV PowerBox Load Sim to Spectrum	05/14/04*	05/14/04						
7019	MSFC Rec Dtr Location&Cable Length from Spectrum	06/08/04*	06/08/04						
7021	MSFC Receives GBM Test Cables from Spectrum	06/09/04*	06/09/04						
6071	MSFC Deliver STM Units to Spectrum	07/06/04*	07/06/04						
6055	MSFC Deliver GIS to Spectrum	07/20/04	07/20/04			 			
7011	MSFC Del Final GBM Math Mass Density Mod to SLAC	01/04/05*	01/04/05						
7013	MSFC Rec Final SC Math Mass Density Mod from SA	01/04/05*	01/04/05						
7015	MSFC Rec Final LAT Math Mass Density Mod fr SLAC	01/04/05*	01/04/05						
7020	MSFC Deliver Final GBM Test Procs to Spectrum	10/31/05*	10/31/05						
1342	MSFC Deliver GSE to Spectrum (Elect & Mech)		11/15/05						
0298	GBM Delivered to Spectrum for Observatory I&T	11/15/05*	11/15/05						
			<u> </u>		200		L lest d S	1 31 31 31 3	<u> </u>
Start Dat	e 04/03/00	.15		Sheet 1A of 1E	3				
Finish Da	ate 05/18/07 Progress Bar	GLAS	T GBM Proj Delivera	ject Schedule	Date	Revision		Checked	Approved
Data Dat Run Date	Childar Activity		Status as o						-
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MPE Schedule



Activ	Activity	Current	Current	Total						2004					200	_
ID	Description	Start	Finish	Float	F	M	Α	М	J	2004 J	A	s o	N	D	200 J	
	strument evel Milestanes											 		0.0		
0313	GBM CDR (Combined Systems)	06/29/04*	06/29/04	0					×			Ì			i	i
GBM Engir	ment Development neering Model									1 1 1 1	1	-				
0311	Nal EQM Detector Testing @ DJO	03/01/04	03/19/04	46	4						Ì	Ì			ļ	1
0305	DJO: Deliver Nal EQM to MPE	05/25/04*	05/25/04	0				X		1 1 1 1	1				1 1 1	
GBM BG0		8000 000 000 000 000 0000	469409000000000000000000000000000000000	-		_				i	i	į	i i		ŀ	ì
8051	MPE Deliver EEE Parts to DJO	03/01/04	02/27/04	-39	1					i	1	1			-	1
6075	Detector FEE's Ready for Integration	03/15/04	03/15/04*	0		X						1			i i	1
0302	DJO: Assembly of BGO EQM Detector Complete	04/30/04	04/30/04	415			A	Z .							1	- 1
6051	BGO EQM Detector Testing @ DJO	04/01/04	06/22/04	423		4				į	j	į			į	į
0314	Deliv EQM Detectors(BGO & Nai) to MPE from DJO	06/22/04	06/22/04	441						1						- 1
5039	Nal & BGO EQM Final Inspection @ MPE	06/23/04	06/23/04	441						1	-		I 1			- 1
5036	MPE: Ship Nal & BGO EQM Detectors to MSFC	06/24/04	07/06/04	411					4	7	- 1	}			1	1
GBM DPU	Bread Board				1						i i	1	1 1		İ	- 1
0641	MSFC Deliver DPU BB to MPE	07/19/04*	07/19/04	709						X	- 1				1	1
GBM Fligh	t Model				1						1	1				
8057	MPE Deliver Nal Crystals to DJO	07/15/04*	07/15/04	0						X	1	į			i	į
GBM BGC	<u>=</u> :											-	1 1		- 	-
8053	MPE Deliver BGO Crystals to DJO	03/01/04*	03/01/04	790	Σ	Z				İ		Ì			į	į
8055	MPE Deliv Connectors, PMTs, Heaters&Thermostats	03/30/04*	03/30/04	615		Σ	Z :				- 1	į			1	1
0125	Detector Module FM Acpt Test(incl Vibe&TVAC)	07/20/04	12/06/04	3						1	1	1		V		-
Start Date Finish Date Data Date Run Date	e 05/18/07 03/01/04 04/06/04 10:59 Early Bar Progress Bar Critical Activity	GLAST GE	M Project Sc /IPE Tasks is as of 3/1/0		of 2	Dat	te			Revisi	on		Che	ecked	Appro	ved



MPE Schedule



28 Performance Test on Subsystem (Detctrs&PwrBx) 07/08/04* 12/09/04 -1 15 MPE Pre-Ship Review (MPE PSR) 01/05/05 01/05/05 16 31 MPE Science Test (Calib) 12/13/04 01/18/05 -1 PFIN Power Box 70 MPE Deliver PwrBox EEE Parts to Astrium 03/01/04 03/01/04* 216 58 MPE: PowerBox Proto FM Manufacturing 12/19/03A 06/01/04 201 70 Astrium: Module Integration of PFM PwrBox 03/23/04 07/20/04 201 76 PwrBox ProtoFit Model Acpt Test(Incl Vibe/TVAC) 07/21/04 08/31/04 201 1etgrator => Environmental Testing 37 MSFC Receive Flight Unit from MPE 02/04/05 0 18c Subsystem Milestones 97 MPE: Manufacture STM Units 01/02/04A 04/09/04 51	0128 Performance Test on Subsystem (Detctrs&PwrBx) 07/08/04* 12/09/04 -1 0215 MPE Pre-Ship Review (MPE PSR) 01/05/05 01/05/05 16 0131 MPE Science Test (Calib) 12/13/04 01/18/05 -1 MNFEN Power Box 5070 MPE Deliver PwrBox EEE Parts to Astrium 03/01/04 03/01/04* 216 0158 MPE: PowerBox Proto FM Manufacturing 12/19/03A 06/01/04 201 0170 Astrium: Nodule Integration of PFM PwrBox 03/23/04 07/20/04 201 0176 PwrBox ProtoFit Model Acpt Test(Incl Vibe/TVAC) 07/21/04 08/31/04 201 M Integration -> Environmental Testing 0137 MSFC Receive Flight Unit from MPE 02/04/05 0 M Misc Subsystem Milestanes 0297 MPE: Manufacture STM Units 01/02/04A 04/09/04 51	Activ ID	Activity Description	Current Start	Current Finish	Total Float	F	М	A	I IVI	_	2	004	Α	s	0	N	D	201 J
MPE Science Test (Calib) 12/13/04 01/18/05 -1	0131 MPE Science Test (Calib)	0128	Performance Test on Subsystem (Detctrs&PwrBx)	07/08/04*	12/09/04	-1												V	
70 MPE Deliver PwrBox EEE Parts to Astrium 03/01/04 03/01/04* 216 58 MPE: PowerBox Proto FM Manufacturing 12/19/03A 06/01/04 201 70 Astrium: Module Integration of PFM PwrBox 03/23/04 07/20/04 201 76 PwrBox ProtoFit Model Acpt Test(Incl Vibe/TVAC) 107/21/04 08/31/04 201 108/23/04> Environmental Testing 118/23/23/24 07/20/04 201 118/23/23/23/24 07/20/04 201 118/23/23/23/24 07/20/04 201 118/23/23/23/24 07/20/04 201 118/23/23/23/24 07/20/04 201 118/23/23/23/24 07/20/04 201 118/23/23/23/24 07/20/04 201 118/23/23/23/24 07/20/04 201 118/23/23/23/23/23/23/23/23/23/23/23/23/23/	### Power Box 5070 MPE Deliver PwrBox EEE Parts to Astrium 03/01/04 03/01/04* 216 0158 MPE: PowerBox Proto FM Manufacturing 12/19/03A 06/01/04 201 0170 Astrium: Module Integration of PFM PwrBox 03/23/04 07/20/04 201 0176 PwrBox ProtoFit Model Acpt Test(Incl Vibe/TVAC) 07/21/04 08/31/04 201 ###################################	0215	MPE Pre-Ship Review (MPE PSR)	01/05/05	01/05/05	16				i	Ì	i	i			i i	 		
70 MPE Deliver PwrBox EEE Parts to Astrium 03/01/04 03/01/04* 216 58 MPE: PowerBox Proto FM Manufacturing 12/19/03A 06/01/04 201 70 Astrium: Module Integration of PFM PwrBox 03/23/04 07/20/04 201 76 PwrBox ProtoFit Model Acpt Test(Incl Vibe/TVAC) 18tegration> Environmental Testing Integration> Environmental Testing 17 MSFC Receive Flight Unit from MPE 02/04/05 0 MSFC Receive Flight Unit from MPE 18te Subsystem Milestanes 97 MPE: Manufacture STM Units 01/02/04A 04/09/04 51	5070 MPE Deliver PwrBox EEE Parts to Astrium 03/01/04 03/01/04* 216 0158 MPE: PowerBox Proto FM Manufacturing 12/19/03A 06/01/04 201 0170 Astrium:Module Integration of PFM PwrBox 03/23/04 07/20/04 201 0176 PwrBox ProtoFit Model Acpt Test(Incl Vibe/TVAC) 07/21/04 08/31/04 201 01/02/04A 01/02/04A 02/04/05 0 0297 MPE: Manufacture STM Units 01/02/04A 03/01/04* 03/01/04* 216 03/01/04* 201 07/20/04 201 08/31/04 201 08/31/04 201 00/04/05 00/04/05 00/04/05 00/04/05 00/04/05 00/04/05	0131	MPE Science Test (Calib)	12/13/04	01/18/05	-1			İ			i	i			i			
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